WHAT IS CLAIMED IS:

1   1..   A computer-based method for determining the optimum join sequence for

2   processing a query having a plurality of tables from a relational database stored in an electronic

3   storage device having a database management system, the method comprising the steps of:

4   (a) a first pass for determining an optimum join sequence for joining the plurality of

5   tables from the query; and

6   (b) a second pass for using the optimum join sequence for creating a lowest cost access

7   path plan for processing the query.

2   2.   The method according to claim 1, wherein the first pass performing successive

    steps until creation of a simulated composite table having all tables from the query, wherein each

3   said step:

4   creating a set of miniplans for simulating all possible joins of a predetermined subset of

5   the query tables; and

6   using a cost model calculations for estimating and saving the least expensive join from

7   said set of joins, thereby determining the optimum join sequence.

1   3.   The method according to claim 2, wherein the first pass for each said miniplan

2   storing a used table index, join method, and sorting data, and for each said least expensive join

3   storing names of joined tables, join cost and possible row orderings.

1   4.   The method according to claim 3, wherein the first pass only storing non-

2   redundant miniplan data, and saving partial results of the cost model calculations for future

3   reuse.

1   5.   The method according to claim 1, wherein the second pass performing successive

2   steps until creation of a simulated composite table having all tables from the query, wherein each

3   said step being performed in the optimum join sequence.

6.   The method according to claim 1, wherein the query being a SQL query.

7.   A computer-based processor system for determining the optimum join sequence

for processing a query having a plurality of tables from a relational database stored in an

electronic storage device having a database management system, the system comprising:

4   means for performing a first pass for determining an optimum join sequence for joining

5   the plurality of tables from the query; and

6   means for performing a second pass for using the optimum join sequence for creating a

7   lowest cost access path plan for processing the query.

1   8.   The system according to claim 7, wherein the first pass means performing

2   successive steps until creation of a simulated composite table having all tables from the query,

3   wherein each said step:

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4   creating a set of miniplans for simulating all possible joins of a predetermined subset of

5 the query tables; and

6   using a cost model calculations for estimating and saving the least expensive join from

7 said set of joins, thereby determining the optimum join sequence.

1   9.   The system according to claim 8, wherein the first pass means for each said

2 miniplan storing a used table index, join method, and sorting data, and for each said least

3 expensive join storing names of joined tables, join cost and possible row orderings.

10.   The system according to claim 9, wherein the first pass means only storing non-redundant miniplan data, and saving partial results of the cost model calculations for future reuse.

11.   The system according to claim 7, wherein the second pass means performing

2 successive steps until creation of a simulated composite table having all tables from the query,

3 wherein each said step being performed in the optimum join sequence.

1   12.   The system according to claim 7, wherein the query being a SQL query.

1   13.   A computer usable medium tangibly embodying a program of instructions

2 executable by the computer to perform a computer-based method for determining the optimum

SVL920010088US1

3   join sequence for processing a query having a plurality of tables from a relational database stored

4   in an electronic storage device having a database management system, the method comprising

5   the steps of:

6   (a) a first pass for determining an optimum join sequence for joining the plurality of

7   tables from the query; and

8   (b) a second pass for using the optimum join sequence for creating a lowest cost access

9   path plan for processing the query.

14.   The method according to claim 13, wherein the first pass performing successive

steps until creation of a simulated composite table having all tables from the query, wherein each

said step:

          creating a set of miniplans for simulating all possible joins of a predetermined subset of

the query tables; and

          using a cost model calculations for estimating and saving the least expensive join from

said set of joins, thereby determining the optimum join sequence.

1   15.   The method according to claim 14, wherein the first pass for each said miniplan

2   storing a used table index, join method, and sorting data, and for each said least expensive join

3   storing names of joined tables, join cost and possible row orderings.

SVL920010088US1

1   16.   The method according to claim 15, wherein the first pass only storing non-

2 redundant miniplan data, and saving partial results of the cost model calculations for future

3 reuse.

1   17.   The method according to claim 13, wherein the second pass performing

2 successive steps until creation of a simulated composite table having all tables from the query,

3 wherein each said step being performed in the optimum join sequence.

    18.   The method according to claim 13, wherein the query being a SQL query.

SVL920010088US1